

What is claimed is:

1. A microfluidic platform comprising a plurality of microfluidics components fluidly connected by microchannels, wherein each of the microfluidic components and microchannels comprises an interior surface, where the combination of microfluidic components defines a manifold, where the manifold communicates to the ambient atmosphere through ports and vents and where each interior surface is coated with a conformal coating of parylene.

2. A method for producing a preassembled device of claim 1 through the use of vapor deposition of parylene.

3. The device of claim 1, where the parylene coating serves as an impermeable barrier between the fluid and the microfluidic manifold material, thereby, enhancing the performance of a biochemical assays.

4. The device of claim 1, where adhesive tape is used for the purposed of sealing and assembly.

5. The device of claim 1, where the parylene coating serves as an impermeable barrier between the fluid and the microfluidic manifold material, thereby, enhancing the performance of a PCR amplification assay.